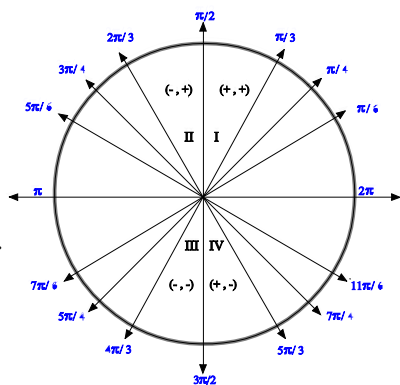
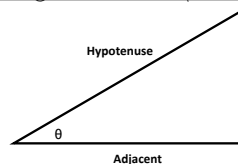


Objective: Students will discover the six basic trigonometric functions.

**Ticket in:**  
**Fill in**  
**all of the**  
**RADIANS.**



Objective: Students will discover the six basic trigonometric functions.



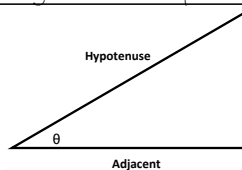
**SOHCAHTOA**

$$\sin \theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

$$\cos \theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\tan \theta = \frac{\text{Opposite}}{\text{Adjacent}}$$

Objective: Students will discover the six basic trigonometric functions.



**SOHCAHTOA**

$$\frac{\text{Hypotenuse}}{\text{Opposite}}$$

$$\frac{\text{Hypotenuse}}{\text{Adjacent}}$$

$$\frac{\text{Adjacent}}{\text{Opposite}}$$

Objective: Students will discover the six basic trigonometric functions.

**These new ratios complete the six trigonometric functions.**

Match the new ratios with their "titles".

Sine =  $\sin \theta$

**O/H**

Cosecant =  $\csc \theta$

**H/O**

Cosine =  $\cos \theta$

**A/H**

Secant =  $\sec \theta$

**H/A**

Tangent =  $\tan \theta$

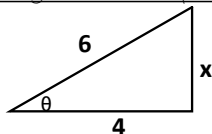
**O/A**

Cotangent =  $\cot \theta$

**A/O**

What do you notice?

Objective: Students will discover the six basic trigonometric functions.



**Find the missing side.  
Then, find the value of  
the six trigonometric  
functions of the angle  $\theta$ .**

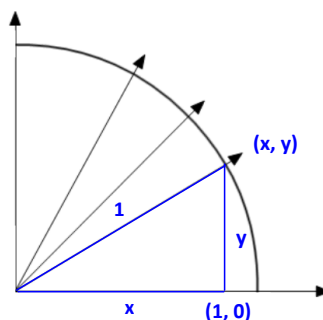
$$x = 2\sqrt{5}$$

$$\sin \theta = \frac{2\sqrt{5}}{6} \quad \csc \theta = \frac{6}{2\sqrt{5}}$$

$$\cos \theta = \frac{4}{6} \quad \sec \theta = \frac{6}{4}$$

$$\tan \theta = \frac{2\sqrt{5}}{4} \quad \cot \theta = \frac{4}{2\sqrt{5}}$$

**Does this relate to the  
UNIT CIRCLE?**



$$\sin \theta = y$$

$$\cos \theta = x$$

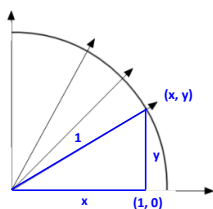
$$\tan \theta = y/x$$

$$\csc \theta = 1/y$$

$$\sec \theta = 1/x$$

$$\cot \theta = x/y$$

**Look at the relationship  
between the functions. Which  
functions are reciprocals of  
each other?**



$$\sin \theta = y$$

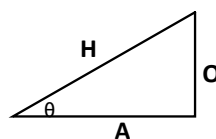
$$\cos \theta = x$$

$$\tan \theta = y/x$$

$$\csc \theta = 1/y$$

$$\sec \theta = 1/x$$

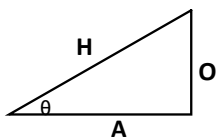
$$\cot \theta = x/y$$



**There are three  
FUNDAMENTAL IDENTITIES  
for trig functions.**

- Reciprocal Identities
- Quotient Identities
- Pythagorean Identities

**Today we will work with the first set of  
fundamental identities  
RECIPROCAL IDENTITIES**



**There are three  
FUNDAMENTAL IDENTITIES  
for trig functions.**

- Reciprocal Identities

$$\csc \theta = \frac{1}{?}$$

1 **Given:**  
 **$\sin \theta = 4/5$  and  $\cos \theta = 3/5$**

**Find:  $\sec \theta$**

2 **Given:**  
 **$\sin \theta = 4/5$  and  $\cos \theta = 3/5$**

**Find:  $\cot \theta$**

3 **Given:**  
 **$\sin \theta = 4/5$  and  $\cos \theta = 3/5$**

**Find:  $\csc \theta$**

4    **Given:**  
 **$\sin\theta = 4/5$  and  $\cos\theta = 3/5$**   
**Find:  $\cot\theta$**

5    **Given:**  
 **$\sin\theta = 4/5$  and  $\cos\theta = 3/5$**   
**Find:  $\tan\theta$**

**Homework:**

- **Complete the activity on page 830**
- **Do page 833 (8 - 19 all). Give exact answers only (fractions). Do not worry about decimal answers.**